INSTITUTE OF AERONAUTICAL ENGINEERING

(AUTONOMOUS)

Dundigal, Hyderabad - 500 043

CIVIL ENGINEERING

ASSIGNMENT QUESTIONS

Course Title	**Rehabilitation & Retrofitting of structure**			
Course Code	A80151			
Regulation	R13 (JNTUH)			
Course Structure	**Lecturers**	**Tutorials**	**Practical's**	**Credit's**
	5	**-**	**-**	**4**
Course Coordinator	Mrs.Cici Jennifer, Assistant Professor, Civil Engineering			
Team of Instructors	Mrs.Cici Jennifer, Assistant Professor, Civil Engineering Mr.A Srinivas, Assistant Professor, Civil Engineering			

COURSE OBJECTIVES:

The course should enable the student to:

I. Identify the causes of deterioration in structures and suggest suitable remedial measures.
II. Generalize the types of damages and understand their mechanisms.
III. Infer the causes and prevention mechanisms of corrosion in steel reinforcement and fire induced damages.
IV. Learn to inspect and assess the structures using techniques of visual inspection and NDT.
V. Evaluate a structural damage and recommend suitable repair and strengthening methods.
VI. Identify the latest health monitoring and building instrumentation methods.

S. No.	Question	Blooms Taxonomy Level	Course Outcome
	UNIT-I **(Deterioration of structures)**		
1	Write short notes on division of maintenance.	Remember	1
2	What is distress? Give its classification.	Understand	1
3	What are the factors responsible for the deterioration of paints?	Remember	1
4	Discuss the affects of freezing and thawing of structures and give remedial measures.	Remember	1
5	What are the various faulty practices that lead to cracking in concrete structures?	Remember	2
6	Discuss the factors affecting rate of carbonation. What are its effects?	Understand	2
7	Explain the cracking phenomena in plastic concrete. Give the remedial measures.	Understand	2
8	What are settlement cracks? What are the factors affecting the settlement cracks?	Remember	3
9	How corrosion of reinforcement develop cracks in concrete? Give protective measures.	Understand	3
	UNIT-II **(Corrosion of Steel Reinforcement)**		
1	Write a note on symptoms of corrosion.	Understand	4

2	Write about preventive measures that ensure good protection for new structures.	Remember	4
4	What are the factors that influence corrosion?	Remember	4
5	What is meant by corrosion of reinforcement? Discuss in briefly.	Understand	5
6	Describe the concrete encasement method of protecting building against fire?	Remember	5
7	Explain briefly the method of rehabilitation of fire damaged structures?	Understand	5
8	Describe the Fire-rated board system method of protecting building against fire?	Understand	5
9	Describe the method of protecting building against fire?	Understand	5
10	On what basis is a structure designed to withstand fire.	Remember	5
	UNIT-III **(Inspection and Testing of distress in structure)**		
1	Briefly describe of Recommendation for retrofit work?	Understand	6
2	Describe in detail the damage assessment procedure in Structure?	Remember	6
3	Differentiate non-destructive testing methods & semi-destructive testing methods?	Understand	6
4	Give a Short notes on Inspection of structures.	Remember	6
5	Explain the figg's test?	Understand	6
6	Explain the Compression test & Tension Test?	Understand	7
7	Explain carbonation test &cathodic protection test?	Understand	7
8	Describe the occurrence of distress Due to Pre-construction stage, Construction stage and Post construction stage?	Remember	7
9	Write a note on cracking, Spalling, Staining, Disintegration, Scaling.	Understand	7
10	Give a brief description about the factors that influence the investigation plan.	Remember	7
	UNIT-IV **(Repair of structures)**		
1.	Enumerate the different methods available for repairs of concrete works. Discuss the any one in detail?	Remember	8
2	Explain the steps involved in underwater repair of structures?	Understand	8
3	What do you mean by leak sealing? Discuss the various methods of leak sealing?	Remember	8
4	Explain the process of guniting in detail with figure?	Remember	8
5	Discuss the method of underpinning in detail.	Remember	9
6	What are the protective surface treatments for structures?	Understand	9
7	Differentiate strengthening and stiffening of members?	Understand	9
8	What are the prevention for erosion control?	Remember	9
9	What is jacketing? What are the different types of jacketing?	Understand	9
10	Explain the column strengthening and strengthening flexural members?	Remember	9
	UNIT-V **(Health Monitoring of Structures)**		
1	What do you understand by health monitoring of structures?	Understand	10
2	Explain the advantages for health monitoring of structures?	Remember	10
3	What are the advantages and disadvantages of smart sensor?	Understand	10
4	Explain the Advantages of Structures health monitoring?	Remember	11
5	Explain the Disadvantages of Structures health monitoring?	Understand	11
6	Explain the use of Smart sensor for monitoring civil engineering infrastructures?	Remember	11
7	Explain the methodology of health monitoring of structures and how is it monitored?	Understand	12

8	Explain the components of health monitoring of structures?	Understand	12
9	What are sensors? At what locations are they used.	Understand	13
10	Where Building Instrumentation is located? & How?	Remember	13

Prepared By: Mrs.Cici Jennifer, Assistant Professor, Civil Engineering

HOD, CE